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Erythropoietic changes in rats after 2.45 GHz nonthermal irradiation.

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The purpose of this study was to observe the erythropoietic changes in rats subchronically exposed to radiofrequency microwave (RF/MW) irradiation at nonthermal level. Adult male Wistar rats (N=40) were exposed to 2.45 GHz continuous RF/MW fields for 2 hours daily, 7 days a week, at 5-10 mW/cm².

Exposed

animals were divided into four subgroups (n=10 animals in each subgroup) in order

to be irradiated for 2, 8, 15 and 30 days. Animals were sacrificed on the final

irradiation day of each treated subgroup. Unexposed rats were used as control

(N=24). Six animals were included into the each control subgroup. Bone marrow

smears were examined to determine absolute counts of anuclear cells and erythropoietic precursor cells. The absolute erythrocyte count, haemoglobin and

haematocrit values were observed in the peripheral blood by an automatic cell

counter. The bone marrow cytogenetic analysis was accomplished by micronucleus

(MN) tests. In the exposed animals erythrocyte count, haemoglobin and haematocrit

were increased in peripheral blood on irradiation days 8 and 15.

Concurrently,

anuclear cells and erythropoietic precursor cells were significantly decreased (p

< 0.05) in the bone marrow on day 15, but micronucleated cells' frequency was

increased. In the applied experimental condition, RF/MW radiation might cause

disturbance in red cell maturation and proliferation, and induce micronucleus

formation in erythropoietic cells.

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